

Contacts and References

EPA New England Energy Team Contacts:

Energy Efficiency
William White
617-918-1333
white.william@epa.gov

**Renewable Energy/
Clean Technologies**
John Moskal
617-918-1826
moskal.john@epa.gov

Transportation
Lucy Edmondson
617-918-1004
edmondson.lucy@epa.gov

**SmartWay Transport
Partnership**
Abby Swaine
617-918-1841
swaine.abby@epa.gov

**Global Climate Change/
Energy**
Norman Willard
617-918-1812
willard.norman@epa.gov

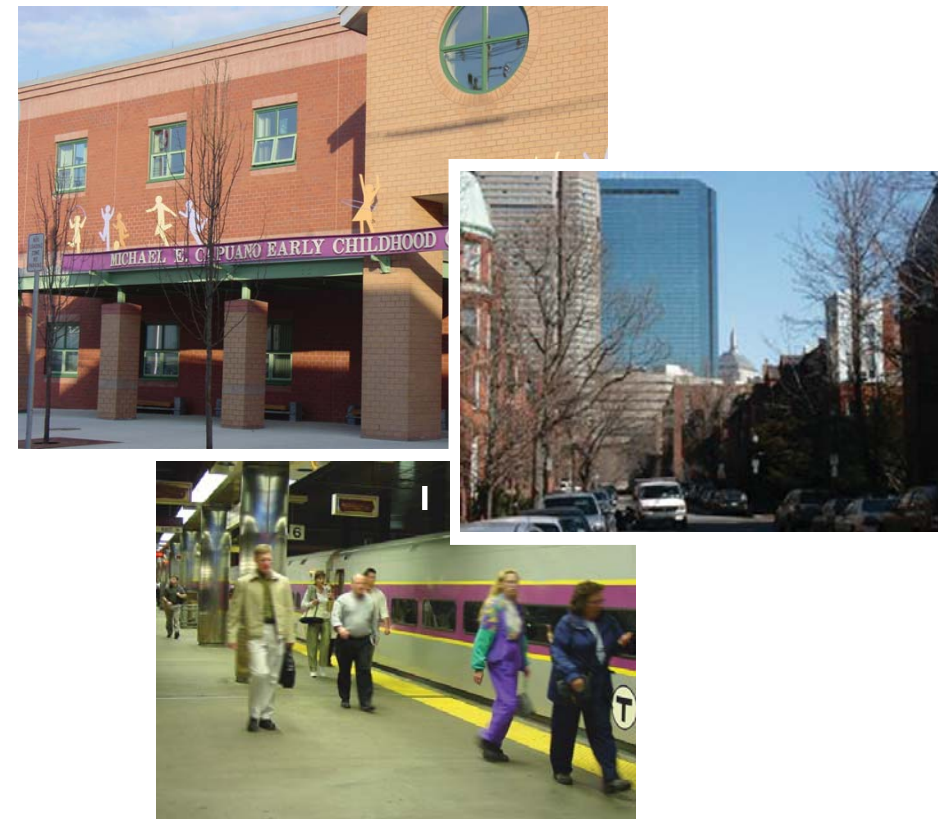
- ▶ **Web links to EPA's Energy Programs**
ENERGY STAR®—www.energystar.gov/
Green Power Partnership—www.epa.gov/greenpower/
Combined Heat and Power Partnership—www.epa.gov/chp/
Best Workplaces for Commuters—www.bwc.gov/
SmartWay Transport Partnership—www.epa.gov/smartway/
Climate Leaders—www.epa.gov/climateleaders/
Climate—www.epa.gov/oar/globalwarming.nsf
- ▶ **Web links to EPA New England Energy Programs**
Energy & New England's Environment—www.epa.gov/ne/eco/energy/index.html
EPA NE's 'Green' Regional Laboratory—www.epa.gov/ne/lab/greenbuilding/index.html
- ▶ **Related Links**
Northeast Energy Efficiency Partnerships—www.neep.org/
- ▶ **Web links to New England State Energy Programs**
Connecticut—www.ctclimatechange.com
Maine—www.maine.gov/dep/air/globalwarming/index.htm
Massachusetts—www.mass.gov/ocd/climate.html
New Hampshire—www.des.state.nh.us/ard/climatechange/index.html
Rhode Island—www.dem.ri.gov/climate/
Vermont—www.anr.state.vt.us/air/Planning/htm/climatechange.htm

Credits
Editor – Amy Miller 617-918-1042

New England:

Cleaner Environment Through

Energy Efficiency & Clean Energy



An Introduction

Residents of New England will enjoy a healthier, safer environment when the Region uses less energy and cleaner energy. Across these six northeastern states, businesses, towns and cities, nonprofit groups and schools are reducing their energy use, the threat of climate change and improving our air quality and water quality.

Here at EPA New England, we have made energy a priority, supporting programs that cut energy use and reduce its impact on our environment. EPA New England has formed an Energy Team whose members focus on energy's impact on air quality and public health. This small group of senior staff guides energy-related policies and programs meant to encourage energy efficiency and renewable power. Conservation efforts complement cleaner energy sources to help New England meet the energy demands of a productive region while also maintaining a healthy environment.

Appliances, buildings and motor vehicles that use less energy cut our energy needs without changing the quality of our lives. Renewable energy, such as wind power, and decentralized sources of energy, such as fuel cells, help reduce our reliance on foreign supplies. In this brochure we recognize the challenges New England faces and the accomplishments of organizations and businesses dedicated to cutting energy use in this region.

Robert W. Varney

Robert W. Varney
Regional Administrator
EPA New England

Cities and towns across New England have found they can save money at the same time that they respond to increased citizen interest in less polluting energy sources. Communities as big as Boston and as small as Poultney, VT are saving millions of dollars each year with new energy efficiency programs and by using cleaner, renewable energy sources. Among the highlights:



Energy Efficiency

► **Fairfield, CT**, has saved more than \$1 million on energy bills through energy efficiency improvements at 24 municipal and school buildings, as well as the town's wastewater plant. The work has been done through a Performance Contract. A performance contract allows an energy services company to do energy upgrades for free up front, and then collects its fee from the money saved in energy costs over the years.

► In **Somerville, MA**, the new Michael E. Capuano School is using 43 percent less electricity and 24 percent less natural gas due to energy efficiency measures expected to save the city \$60,000.



The Capuano School, Somerville, MA

► **Manchester, NH**, is saving nearly \$100,000 a year on its energy bills by replacing more than 3,000 traffic lights with energy-efficient light emitting diode (LED) traffic lamps. These lamps, which are certified under the ENERGY STAR® program, use 80 to 90 percent less energy and last three to four years longer.



Energy saving traffic lights in Manchester, NH

► **New Hampshire's Department of Justice** building uses 37 percent less energy than average for a building its size, preventing annual greenhouse gas emissions equal to 200 vehicles while saving more than \$24,000 a year. Built in 1955, this state building is one of 74 buildings

Cities and Towns



in New Hampshire that received extensive upgrades as part of the state's Building Energy Conservation Initiative. Together these upgrades save New Hampshire taxpayers more than \$1.1 million in annual energy bills.

► **The Maine Public Utilities Commission Building** in Augusta was the first office building in the state to earn the ENERGY STAR® label. It uses 35 percent less energy than average for a building its size. Built in 1942, the PUC building received several upgrades, including efficient lighting and a solar hot air wall-mounted panel system. New operating practices reduced energy use further while improving indoor air quality and ventilation.

► The **CT Department of Environmental Protection** building in Hartford earned an ENERGY STAR® label after scoring 90 out of 100 on ENERGY STAR®'s National Energy Performance Rating scale. Built in 1930 and renovated in 1995, it proves that older buildings can be energy efficient. The DEP building uses one third less energy than average for a building that size—saving taxpayers more than \$400,000 each year. It is one of more than 20 buildings upgraded by the State Building Energy Conservation Program that together saves taxpayers millions of dollars.

► **Medford City Hall** was the first city or town hall building in Massachusetts to earn the ENERGY STAR® label. Completed in 1937, Medford City Hall has new lighting and controls, solar panels for electricity, more efficient heating, and water conserving plumbing fixtures. Medford City Hall uses 28 percent less energy than average for a building its size.

► **Manchester, VT**, recently replaced more than 40,000 incandescent light bulbs with energy efficient compact fluorescent bulbs (CFLs) that use less than a third of the energy. The town completed this in under six months. Over the lifetime of the bulbs, the project will save \$1.7 million and 13,184 megawatt-hours of energy, enough to power nearly 1,600 Vermont households for a year. It will also prevent 7,772 tons of CO₂ emissions - the equivalent of taking 1,345 vehicles off the road.

► The **Somersworth, NH, Housing Authority** saves more than \$45,000 a year on energy bills, thanks to energy-saving lighting and other energy improvements at its 169 housing units. The energy upgrades were done through a performance contract with an energy services company that guaranteed the town \$540,000 in savings over 12 years.



Transportation

► The **Town of Natick, MA**, worked with General Growth, the contractor involved in the expansion of the Natick Mall that began in 2005, to require the use of advanced pollution control technology and low sulfur diesel fuel and to enforce state idling regulations for construction vehicles involved in the project.

► The **City of Boston** has equipped all 35 diesel tourist trolleys operating in the city with diesel oxidation catalysts using a grant from EPA's National Voluntary Diesel Retrofit Program. The city has also begun using a blend of biodiesel and ultra low sulfur diesel for the 450 diesel vehicles in its fleet, and as of 2006, any new vehicles purchased by the city must be a hybrid or alternative fuel vehicle, whenever possible.



Boston Trolleys were retrofit to reduce emissions



EPA NE a National Leader on Energy Efficiency

EPA's New England Office also takes energy efficiency seriously. The agency's new regional laboratory in North Chelmsford, MA is a showcase for energy efficient building. The vehicle fleet has been upgraded to reduce emissions, and high efficiency systems and green building features have been incorporated into new office space in Post Office Square, Boston, that EPA New England expects to occupy in 2009.

The North Chelmsford lab was the first EPA building in the country to get the highest rating from the U.S. Green Building Council. The 1.0 Gold Rating LEED (Leadership in Energy and Environmental Design) was given through their rating system designed to encourage more sustainable buildings.

EPA New England's motor vehicle fleet has been transformed from one that was reliant on SUVs and large low-mileage sedans into a modern fleet with several hybrid vehicles and many compact cars for regional travel. This overhaul of the fleet has saved taxpayers thousands of dollars a year in fuel costs.



EPA New England's regional lab in North Chelmsford, MA

► Massachusetts Maritime Academy in **Bourne, MA**, and the International Brotherhood of Electrical Workers Union in **Dorchester, MA**, built on-site wind turbines to provide electricity to their facilities.

► Portsmouth Abbey School in **Portsmouth, RI**, built the first large wind turbine in the state. The 660-kilowatt turbine will save the school more than \$100,000 a year in electricity costs and will be used to teach students about energy as part of their science curriculum.

► In **Vermont**, 25 schools are using wood instead of oil to heat their facilities. In 2004, these heating systems saved the schools more than \$370,000 and the equivalent of 700,000 gallons of fuel oil.

► In **New Haven, CT**, a 200-kilowatt fuel cell at the city's wastewater treatment plant is saving the city nearly \$700,000 a year in electric bills, while also supplying the heat to run an expanded fats/oil/grease processing facility. This expanded facility also pays the city \$200,000 in usage fees each year. Fuel cells produce heat and electricity by combining hydrogen and water in an emission-free electrochemical process.

► Burlington Electric Department in **Burlington, VT**, has signed a 20-year contract to buy electricity from a proposed nine-megawatt wind farm on Little Equinox Mountain in Manchester. The wind project, slated to provide 7 percent of the city's electricity, is a major boost to the city's goal of reducing greenhouse gas emissions by 10 percent by 2010.

► **Essex Junction, VT**, has installed a high efficiency microturbine to provide heat and electricity to its wastewater plant. This system will provide about 40 percent of the plant's electricity needs, saving the city some \$30,000 a year in electricity costs. The turbine runs on natural gas, but in this case, the fuel is a renewable by-product of the wastewater treatment process. This system will cut the plant's greenhouse gas emissions by more than 250 tons a year — the equivalent of taking 42 cars off the road.

► **Brockton, MA**, hosts New England's largest solar energy park on an abandoned Brownfields site. The "Brightfield" project, which received major funding from EPA and the Massachusetts Technology Collaborative, will include as many as 6,720 solar panels connected in "strings" that span the 27-acre site.



Clean Energy

► In **Hull, MA**, a second wind turbine was built on the site of the town's old landfill, saving the town's ratepayers \$400,000 a year on their electric bills. The first wind turbine has already cut the town's electric bill by about \$140,000 annually.

► In **Durham, NH**, the University of New Hampshire's cogeneration plant will use natural gas from a nearby landfill starting in 2007. The plant will provide electricity, steam and heat to the campus using methane, a greenhouse gas that would otherwise be released into the atmosphere.



John Hancock tower saves \$3.5 million in energy bills

NE States Stepping to Plate on Energy Efficiency and Renewable Power

From energy efficiency to renewable power, New England states are national leaders. These six states made commitments through the New England Governors and Eastern Canadian Premiers' Climate Change Action Plan to put in place policies that are among the most aggressive in the nation.

New England states together have committed more than \$250 million a year to energy efficiency. These investments combined with aggressive efficiency standards for home appliances are recognized as among the leading efficiency programs in the US.

In addition, EPA's ENERGY STAR® program, which encourages businesses to reduce energy use, has led dozens of building managers to use EPA software that measures energy consumption and helps managers cut demand in their buildings. This approach has been adopted by hospitals, schools,

hotels and commercial office buildings throughout the region.

When it comes to renewable energy, New England is also showing leadership. Connecticut, Massachusetts and Rhode Island have enacted standards requiring increasing amounts of electricity sold in each state to be generated from renewable resources such as wind, hydro and solar power. In addition, those states also have funds that spend more than \$25 million a year to advance renewable energy technologies and businesses in their states.

Finally, many commercial, institutional and municipal energy users are requiring that more of the energy they buy come from renewable resources. EPA recognizes these efforts through its Green Power Partnership. The City of Boston, Whole Foods Market, Staples and Interface Fabrics Corporation are among more than 30 partners in New England.

Bringing Energy Efficiency to New England's Lodging Industry

EPA has partnered with trade associations, leading owners, and utilities to bring the message of energy efficiency to New England's lodging industry. Nationwide, hotels spend almost \$4 billion on energy every year, and are among the most energy intensive commercial buildings.

EPA is collaborating with lodging industry associations throughout New England to help hotel owners adopt a strategic approach to energy management. EPA has presented at two training sessions hosted by the New Hampshire Lodging and Restaurant Association, and is also training New Hampshire utility staff to coordinate energy efficiency incentive program offerings with a strategic energy management approach.

In Massachusetts, EPA is partnering with Boston Green Tourism (BGT) to train dozens of area hotel owners in strategic energy management. BGT members are already taking the first step toward strategic energy management—assessing or “benchmarking” their current energy performance using the ENERGY STAR® Portfolio Manager benchmarking tool. EPA will work with BGT and its members to track and recognize energy efficiency improvements at these facilities. EPA also joined Massachusetts utilities, energy service companies, and the Saunders Hotel Group—2005 ENERGY STAR® Partner of the Year—in addressing the Massachusetts Lodging Association during the opening session of their 2006 annual meeting.

Businesses across New England have also learned that cutting energy use is one of the easiest, most cost-effective ways to control costs. Companies also find they can be more independent and predict costs with more accuracy by buying more of their power from clean, renewable energy sources. Among the examples across the region:



Energy Efficiency

► **The Saunders Hotel Group** is a national leader when it comes to energy and environmental performance—earning them ENERGY STAR®'s highest award, “Partner of the Year.” Two Saunders hotels built a century apart, the historic Lenox Hotel in Boston and the Comfort Inn at Logan Airport, both earned ENERGY STAR® labels. The Saunders Hotel Group achieved these impressive results using a wide range of technologies and practices, including: an advanced ozone laundry system to minimize the use of hot water and chlorine, water conserving fixtures and equipment, energy efficient lighting and heating, and good management practices.

► Massachusetts-based **Tufts Health Plan's** Watertown headquarters facility uses almost one-third less energy than an average performing building—saving hundreds of thousands of dollars in annual energy bills. A comprehensive energy management strategy helped the building earn an ENERGY STAR® label in 2006. Key features of the energy strategy include: aligning lighting and air conditioning operations closely with work schedules, lighting occupancy sensors, and computer monitor power management software.

► **The Raytheon Corp.** of Tewksbury received a national ENERGY STAR® award for its successful lighting efficiency program, which saves the company more than \$250,000 a year. With upgrades only partially completed, Raytheon has cut lighting costs by an average of 82 percent.

► After launching an energy program in 2000, **Cambridge Savings Bank** in Cambridge, MA reduced its energy use by 22 percent between 2001 and 2002,

even though it added two new branches during this period. The company's energy efficiency program saves the bank more than \$60,000 a year. Two Cambridge Savings Bank buildings earned the ENERGY STAR® label in 2003 and seven buildings, including five branches, received the label in 2004.

► Working with Efficiency Maine, **Taylor Farm** in St. Albans, ME installed nine large energy efficient fans in its dairy barn instead of 119 conventional fans.

In addition to expected energy savings of more than \$20,000 a year, the variable speed drive units produce a more even flow of cool air that is better for milk production: it keeps the farm's 500 cows from bunching around the smaller fans.



New solar panels at Shaw's Supermarket in Burlington, MA



Tufts Health Plan Headquarters in Watertown, MA

► The **Genzyme Corp.** has built a new 12-story headquarters in Cambridge, MA that will reduce energy use by about 42 percent, saving the company about \$460,000 a year. The building's sustainable design also includes waterless urinals and low-flow fixtures that will reduce potable water use by nearly a third, or about 500,000 gallons a year,

and a vegetative roof and rainwater collection system that will reduce stormwater runoff.

► **Mellon Bank's** 375,000 square foot processing facility in Everett, MA, was the first facility in New England to earn ENERGY STAR® labels five years in a row. Mellon has achieved substantial reductions in energy use primarily through better management. The bank improved its energy performance rating score from 54 to 87 (out of 100) in just four years. Energy use has been cut by more than 15 percent and total cost savings exceed half a million dollars.

Businesses



Bringing “Green” Principles to Shipping

The US Environmental Protection Agency and the freight industry are working together through the SmartWay Transport Partnership to both make our country more secure and significantly reduce air pollution and greenhouse gases. The partnership challenges shipping companies and truck and rail carriers that deliver products to minimize the pollution caused by their operations.

By 2012, this initiative aims to eliminate 33 to 66 million metric tons of carbon dioxide emissions and up to 200,000 tons of nitrogen oxide emissions each year. At the same time, the initiative will reduce fuel use by up to 150 million barrels of oil a year. The program, with more than 365 partners, is developing new tools like low-interest loan programs to help finance upgrades on vehicles. EPA New England works to encourage trade associations, truck and rail carriers, shippers, ports, and state/regional agencies to join the effort. The agency promotes related technologies and infrastructure, and explores ways different modes of transportation can work together.

A Beacon of Energy Efficiency: The John Hancock Tower

One of the most prominent buildings in Boston's skyline is now also a symbol of energy efficiency. Boston's John Hancock Tower, an icon of modern architecture owned and managed by an affiliate of Beacon Capital Partners, has earned EPA's ENERGY STAR® label. Beacon Capital Partners also earned an ENERGY STAR® label for two other landmark buildings in the John Hancock Tower Complex in 2005—buildings at 200 Berkeley St. and 197 Clarendon St. made significant energy efficiency improvements.

Designed by I.M. Pei and completed in 1976, the 2.2 million square foot John Hancock Tower, at more than 60 stories and 790 feet tall, is the tallest building in New England. It scored an impressive 77 out of 100 on ENERGY STAR®'s national performance rating system. Together with 200 Berkeley and 197 Clarendon, the John Hancock Tower Complex comprises nearly 3.2 million square feet of space.

Compared to similar buildings with average energy performance, EPA estimates that the John Hancock Tower used almost one-third less energy, saving more than \$3.5 million each year in energy bills. When a building uses less energy, it generates less pollution. Commercial buildings account for more than 17 percent of our nation's greenhouse gas emissions. EPA estimates that the John Hancock Tower avoided more than 30 million pounds of carbon dioxide emissions in 2005, and conserved enough energy to power more than 1,700 homes for a year.

Like the Hancock Tower in the Boston skyline, the ENERGY STAR® label is easy to find. And ENERGY STAR® helps everyone—consumers, homeowners and businesses—cut energy demand, save money and improve the environment. In 2005 alone, ENERGY STAR® helped Americans save more than \$12 billion on their energy bills and prevent greenhouse gas emissions equivalent to those from 23 million vehicles.

► **Progressive Plastics** saves nearly \$18,000 a year with energy efficient hydraulic injection molding machines at its Williamstown, VT, plant. In addition to cutting electricity use by 160,000 kilowatt hours a year, the more efficient machines reduced the company's scrap rate from 5 percent to nearly zero and eliminated the labor and environmental costs of dealing with hydraulic fluids in the old machines.

► **The Green Co.**, a home builder in Newton, MA, has built hundreds of ENERGY STAR®-qualified homes, including 80 in Plymouth, MA, that earned the company a "2004 ENERGY STAR® for Homes Outstanding Achievement Award."

► **Gregory's Supply**, a building supply and hardware store in Burlington, VT, saves \$10,000 a year through energy efficient equipment and practices at its 24,300-square-foot store.



Transportation

► **IBM** in Cambridge, MA, joined EPA New England's list of Best Workplaces for Commuters in 2006. To help employees reduce air pollution from their commutes, IBM offers an outstanding commuter benefits package, including a transit subsidy, emergency ride home program and a significant telecommuting program.

► **PlanetTran** of Cambridge, MA, is the first auto service in the country to exclusively use ultra fuel efficient hybrid vehicles.

► In addition to offering its employees \$65 a month for transit subsidies, the **People's Bank** in Bridgeport, CT, gives employees \$1 a day when two employees commute together and \$1.50 a day when three or more employees ride together. People's Bank joined EPA's Best Workplaces for Commuters list in 2003.



Clean Energy

► The **Business Council of Fairfield County** and its member companies have embraced energy efficiency to save money, reduce air pollution and improve reliability of the region's antiquated and overburdened electric system. The council and EPA together developed an innovative program to improve energy efficiency in large office buildings that were adopted by the Connecticut

Businesses cont'd



Public Utilities Commission and put in place by Northeast Utilities and United Illuminating. In the first round of the program, participating companies received comprehensive energy upgrades in a total of about 8 million square feet of office

space. This saved them hundreds of thousands of dollars and significantly reduced energy use. The pilot was so successful it was expanded to address other buildings in a second round.



The Searsburg, VT Wind Farm is one of the renewable energy suppliers for the GreenUp program in MA and RI

► In 2004, **Cranmore Mountain** in North Conway, NH, became the first ski resort on the East Coast to use biodiesel fuel to power its snow grooming machines. The project is a collaboration of the NH Department of Environmental Services and the Granite State Clean Cities Coalition, a statewide partnership aimed at increasing the use of alternative fuels across New Hampshire.

► **National Grid**, a major electricity supplier in Massachusetts and Rhode Island, now offers a renewable energy choice program called GreenUp. This program gives residential and small business customers in Massachusetts and Rhode Island several options for getting electricity from renewable energy sources, such as wind, solar, biomass and small hydroelectric. The program, the first of its kind in New England, has already attracted more than 1,000 Rhode Island customers. A typical residential customer will pay between \$6 and \$12.50 more a month, depending on the renewable source selected.



The Schiller power plant in Portsmouth, NH, will soon be burning wood chips

► **Interface Fabrics Group**, a commercial fabric manufacturer with facilities in Massachusetts and Maine, is buying 2.5 million kw hours of wind power a year—enough electricity to weave one million yards of Interface's environmentally conscious fabric known as Terratex. The cost of the energy certificates to support the wind power

is more than offset by the new business generated from good publicity and resulting good will.

► **Public Service Co. of New Hampshire** is set to bring on line in late 2006 a new wood fired boiler to replace a 50-megawatt coal-fired unit at its Schiller Station in Portsmouth, NH. The new wood-fired boiler will reduce nitrogen oxide emissions by 75 percent, sulfur dioxide emissions by 95 percent and mercury emissions by 90 percent.

► **New England Confectionary's** manufacturing facility in Revere, MA, is powered by a six-megawatt combined heat and power plant. This plant operates at 68 percent efficiency compared to a national average of 33 percent for conventional generation. The plant saves the company about \$750,000 a year in utility costs while cutting emissions of carbon dioxide by 32 percent, nitrogen oxides by 39 percent and sulfur dioxide by 97 percent per ton of candy produced.



Nonprofit groups can educate and inspire New Englanders about the wide range of possibilities for creating “green” buildings with energy-saving features and renewable energy. All across the region—from parish halls in Massachusetts, to land conservation groups in New Hampshire—nonprofits are using new green building designs to showcase technologies that are available and to demonstrate their own environmental commitment.



Energy Efficiency

▶ Given Mark Twain’s fascination with technology, it only makes sense that the new **Museum Center at the Mark Twain House** in Hartford, CT, would include cutting-edge ‘green’ technologies. The 33,000-square-foot building that opened in 2005 uses geothermal wells as the primary heating and cooling source and various other energy-saving systems that are expected to cut energy use by nearly 30 percent.

▶ By installing photovoltaic solar panels and a renewable wood-chip heating system, **Society for Protection of New Hampshire Forests** has cut energy bills at its Concord, NH, headquarters by 23 percent. The nonprofit group has also opened a new 11,400-square-foot wing built with native green-certified lumber and a super-insulated airtight exterior shell that uses 60 percent less energy than comparably-sized buildings.

▶ Through upgrades and other energy-saving measures, **All Saints Parish** of Brookline, MA, has reduced its utility bills by nearly \$5,000 a year, despite an increase in operating hours. All Saints Parish is a member



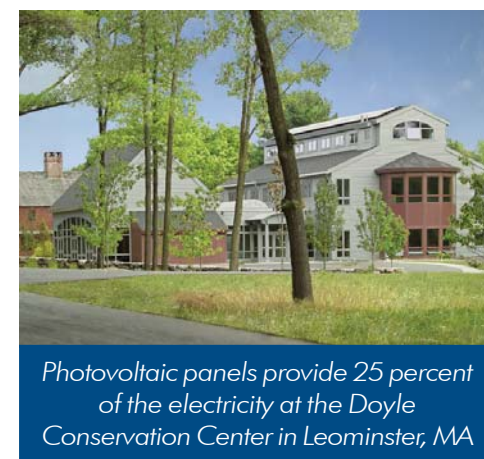
The Mark Twain Museum Center in Hartford, CT is the first LEED-certified museum in the country

Fostering Clean and Renewable Energy

EPA New England is working closely with state and federal agencies to increase the supply of cleaner and renewable energy resources in the region. EPA New England is working on Cape Cod with the Minerals Management Service and the US Forest Service on Deerfield wind projects to ensure they are developed to minimize any potential environmental damage and to comply with environmental regulations.

The newer, cleaner natural gas power plants that

replaced oil and older natural gas plants have helped improve the region’s air quality. However, that switch has made the New England region rely more on natural gas and could lead to shortages. To meet this increased demand, private developers have proposed several Liquefied Natural Gas (LNG) import terminals for the region. EPA New England is working with other federal and state agencies to review proposals and minimize environmental damage caused by any new LNG terminals.



Photovoltaic panels provide 25 percent of the electricity at the Doyle Conservation Center in Leominster, MA

for heating and cooling are just a few of the “green” attributes of **The Trustees of The Reservations’ new Doyle Conservation Center** in Leominster, MA. The 18,000-square-foot building has cut its energy bill by 61 percent, or about \$6,000 a year.

▶ **Massachusetts Audubon’s** Boston Nature Center in Mattapan, MA, includes photovoltaic shingles that convert the sun’s energy into electricity and a ground-source geothermal heat pump system that takes advantage of the solar energy stored in the earth to provide efficient heating and cooling. The 10,150-square-foot building uses 30 to 35 percent less energy than other similarly sized buildings.

of the Massachusetts Interfaith Power and Electric initiative, which has helped dozens of other congregations reduce energy consumption and promote renewable energy.

▶ Roof-mounted photovoltaic panels, composting toilets and two 1,500-foot geothermal wells used



Bike commuting is catching on in Burlington, VT



Transportation

▶ The Boston office of **Environmental Defense**, a national environmental advocacy group, joined EPA New England’s list of Best Workplaces for Commuters in 2005. ED located its Boston office near a transit stop, encouraging employees and visitors to take public transportation. ED offers a substantial telecommuting program, which results in more than 20 percent of employees working from an alternative location at least one day a week.

Best Workplaces for Commuters

EPA and the U.S. Department of Transportation have teamed up to honor companies and organizations that offer superior commuter benefits, such as public transit subsidies, robust telecommuting programs and carpool matching services. Employers that participate are included on New England’s list of “Best Workplaces for Commuters.”

The list is publicized annually through the media and at special events across New England.

The 2006 list includes 144 employers from around New England representing nearly 190,000 employees in the region. The New England list represents the full range of employers in New England and includes IBM Cambridge; national consulting firm Abt Associates; Oracle; Basis Technology; People’s Bank; the University of New Hampshire; Seventh Generation in Burlington, VT; Kent Hospital in Rhode Island and EMC Corporation.

In 2002, EPA’s New England office in Boston became the first government agency in the region to join the program. More than 90 percent of the agency’s Boston employees use public transit, vanpools or bicycles in their daily commutes.

continued▶

The Northeast Diesel Collaborative

Emissions from diesel engines are a primary source of air pollution in New England and can aggravate respiratory problems. Two counties in Connecticut fail to meet air quality standards for fine particles, and cities across New England narrowly meet the standard. The northeastern states have some of the highest asthma rates in the nation, including a childhood asthma rate above 10 percent in each New England state.

Although EPA has taken steps to ensure that diesel engines in the future are cleaner than those operating today, older models of these engines that are still being used could pose health and environmental risks for decades.

EPA New England, aware of the value of working together to combat emissions, has joined with EPA Region 2, the Northeast States for Coordinated Air Use Management (NESCAUM) and the governments of the eight northeastern states to establish the Northeast Diesel Collaborative. This group focuses on key causes of diesel emissions from motor vehicles, construction equipment, boats and trains. The goals of the collaborative are to retrofit and replace engines; reduce engine idling by trucks and buses; and promote cleaner fuels.

The NEDC is joining other organizations in New England to help with local efforts to reduce diesel emissions. One such initiative is **Greater Boston Breathes Better**, which involves government, businesses, schools and non-profit organizations working to reduce air pollution from transportation sources in and around Boston. Greater Boston Breathes Better (GB3) provides a range of options to companies or institutions that want to reduce air pollution and air toxics from motor vehicles, trains and planes. **Boston Coach**, for instance, has created an anti-idling program for all of its buses and limos. Shuttle buses serving the Longwood Medical area have been equipped with diesel particulate matter filters and run on ultra low sulfur diesel fuel, reducing emissions by more than 90 percent. And **Harvard University** runs all its diesel vehicles on biodiesel fuel. In the past year, nine Boston-area employers have been added to EPA's Best Workplaces for Commuters list, bringing the Greater Boston area total to 78.

cont'd

& Universities



- ▶ The **Consensus Building Institute**, a nonprofit in Cambridge, joined EPA New England's Best Workplaces for Commuters list in 2005. The institute offers outstanding commuter benefits, including a telecommuting program that reduces 7.5 percent of employee trips per month. Benefits also include a transit subsidy and a guaranteed ride home program.



Clean Energy

- ▶ The **Artists for Humanity Epicenter** in Boston includes the largest photovoltaic system in New England's largest city. The 49-kilowatt, 160-panel solar array supplies more than 80 percent of the building's electricity. The project, a LEED Platinum certified building, also includes enhanced natural light, panel fans and an unusual ventilation tower that eliminates the need for air conditioning. The LEED (Leadership in Energy and Environmental Design) Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings.



The Artists for Humanity Epicenter includes a glass curtain wall for daylighting benefits



Employers in Boston encourage commuters to save time and money by riding the commuter rail, subway, and the bus



Energy Efficiency

- ▶ **Yale University's Energy Program** in New Haven includes a novel energy conservation website (<http://java.facilities.yale.edu/cmp/energy.jsp>) that supports the program's effort to improve efficiency of power plants, update buildings, encourage emerging technologies and find clean energy alternatives. The web site focuses on the habits and daily life of members of the campus community. Visitors can view in real time the amount of energy that has been saved since January 1, 2005 at various Yale buildings. For instance, between that date and May 2006, the school reduced its use of natural gas by 272,000 million cubic feet, cut its oil use by 47,000 barrels and avoided 21,200 metric tons of carbon equivalent emissions through conservation measures and new technologies. An energy scorecard encourages students to compete with each other by showing the relative energy reductions accomplished by various dormitories.

- ▶ The **University of New Hampshire** earned the first ENERGY STAR® label for college residence halls in the nation for three buildings on its Durham campus. The halls were recognized for superior energy performance – they use about 40 percent less energy than average for buildings of similar sizes. This saves the university almost \$80,000 a year while preventing thousands of pounds of air pollution from entering the atmosphere. UNH's long-standing commitment to energy efficiency in the design and operation of campus buildings is saving the University \$4 million a year in energy compared to the national average for comparable buildings. Specific measures include: lighting change-outs, new motors, revamped building control systems, and energy education for the maintenance and operations staff, students and faculty.



Middlebury College has won praise for its new energy-efficient library

- ▶ In 2005, **Tufts University** was among only 17 individuals and organizations to receive EPA's prestigious Climate Protection Award for the Tufts Climate Initiative. The University now includes current and historical greenhouse gas emissions figures for all building types in its three schools in an annual Tufts University Fact Book prepared by the University's Office of Institutional Research.

- ▶ The **Middlebury College Change-A-Light** campaign, launched by a student organization, encourages students to trade incandescent light bulbs with screw-based compact fluorescent light bulbs. The college's facility department offered to pay for 2,000 lamps. Efficiency Vermont offered to pay \$2 per lamp. The student group went door to door in all dorms promoting the more energy-efficient bulbs. In less than six months, 1,400 bulbs were swapped out, which saving more than 65,000 kilowatt-hours per year. Based on the success of this effort, Efficiency Vermont, in partnership with Vermont Campus Energy Group, EPA and ENERGY STAR® began planning an Inter-Collegiate Change-A-Light competition to involve all colleges in Vermont to participate in campus-wide Change-A-Light program."



▶ Since publishing a ground-breaking environmental report card of campus operations, the **University of Vermont's** Environmental Council has developed many projects to enhance energy efficiency and smarter energy use on campus. Among the "smart projects:" Cooling system upgrades at the heating plant have reduced annual energy bills by \$40,000 and annual water use by 690,000 cubic feet. New on-campus washing machines consume 50 percent less water and 40 percent less electricity. Occupancy sensors, light emitting diode exit signs and Sleep Mode software for computers are used in all campus buildings. The University's Environmental Council encourages environmental entrepreneurship by offering small grants to support the planning and/or implementation of innovative projects that reduce UVM's ecological footprint.

▶ In the fall of 2005, **Smith, Mount Holyoke and Amherst colleges** challenged their students to join the Million Monitor Drive, EPA's ENERGY STAR® program challenging computer users nationwide to activate their monitor power management features and thereby dramatically reduce electricity use. The goal was 75 percent participation for each school. Just over 75 percent of Mount Holyoke and Smith students and 55 percent of Amherst students participated. These efforts will save the schools up to 961,000 kilowatt hours a year and \$82,000 and offset 690 tons of carbon dioxide per year. A full 75 percent participation rate would save the three schools enough power to pay for enough green energy to run all the student computers for a year.



Transportation

▶ The **University of Vermont in Burlington** has joined the "yellow bike" craze that's starting to roll out at colleges across the region and country. Under the program, used bikes are fixed up, painted yellow and made available for free for students' use on campus. "Yellow bike" cooperative programs offer an easy alternative to driving. The UVM program stems from a student thesis done for an environmental studies course and was supported with a \$1,000 mini-grant from UVM's Environmental Council. Other schools in New England with "yellow bike" programs include, the University of New Hampshire, Hampshire College in Massachusetts and Middlebury College in Vermont.

▶ **The Massachusetts College of Pharmacy and Health Sciences** gives its employees a 60 percent subsidy for using public transportation or vanpools. The college also participates in the Medical Academic and Scientific Community Organization's Commuter Incentive Program, which provides up to \$200 for outdoor gear to commuters who bike, walk, or rollerblade to work at least two days a week for six months.



Clean Energy

▶ **The Community Solar Power Initiative** at MIT installed 25 advanced solar photovoltaic systems on campus and in the community. Supported by a grant from the Massachusetts Technology Collaborative, the project involved local home owners, institutional leaders, and a host of local solar engineers, entrepreneurs, and installers to add more than 74 kilowatts of solar energy capacity to the area. This generated enough electricity to light more than 60 homes with no greenhouse gas emissions or other harmful emissions. The three systems on MIT's campus mark an important milestone: the first large-scale renewable power systems inter-connected to MIT's power grid. The project shows that MIT can bring innovative and renewable power to its campus in a way that is practical and reliable.



A wind turbine being built in the Midwest will supply renewable power for the College of the Atlantic in Maine

▶ **Colby College** in Waterville, ME, no longer relies on fossil fuels for electricity thanks to a contract that has all of the college's electricity coming from renewable energy sources. Half of the college's power is coming from Maine hydro-power, the other half from Maine biomass wood waste such as wood chips and saw dust. By eliminating its past reliance on coal for 70 percent of its power, Colby has cut its smog-causing nitrogen oxide emissions by 41 percent and acid rain-causing sulfur dioxide emissions by 98 percent.

▶ In April 2004, **the College of the Atlantic** in Bar Harbor, ME, became the nation's first college to make a multi-year commitment to purchase 100 percent of its electricity from new renewable wind-power sources. To achieve this goal, the college signed two contracts – a short-term contract to buy renewable energy credits, or 'green tags,' from Native Energy LLC in Charlotte, VT, and a long-term contract with the Endless Energy Corp. which is developing wind power facilities in Maine.

▶ **Connecticut College**, a founding member of EPA's Green Power Partnership, recently doubled its support for the generation of green power by buying wind power energy certificates equal to six megawatts, or about 44 percent of the college's annual electric consumption. The effort began when students in the college's Renewable Energy Club won approval to raise student fees to pay the extra costs for the renewable power.

▶ Under a two-year contract, EAD Environmental, a green power marketer from New York, is supplying the **University of Southern Maine** in Portland with 1.5 million kilowatt hours of Green-e™ certified renewable energy certificates from wind energy facilities to offset electricity needs of a new campus building.

▶ The **Central Utility Plant at MIT** is hosting an algae colony upon its roof as part of a pollution control technology being developed by an energy firm in Cambridge. This unit uses a fraction of the carbon dioxide being emitted from the power plant's emission stream while also removing polluting nitrogen oxide emissions. As the algae feeds on the CO2 and other pollutants, it grows and gives off oxygen and nitrogen, producing biomass that can be converted into biofuels, including biodiesel. MIT is considering expanding its collaboration with the energy firm to process the algae on campus into biodiesel for possible use on campus. The installation has proven that this technology is feasible and as a result efforts are underway to build large-scale industrial applications.

NE and Eastern Canadian Universities
Charting New Energy Paths

More than 100 New England college and university presidents and chancellors representing 67,000 students, faculty and staff have agreed to support the goals of the New England Governors'/Eastern Canadian Premiers' Regional Climate Action Plan. Many set greenhouse gas reduction goals for their campuses, and all of them are taking on a wide range of energy efficiency, renewable and clean energy and smart transportation projects that help control rising electricity and fuel costs and reduce air pollution.

A new professional development network of college and university professionals who are working to "green" campuses across New England has

formed the Northeast Campus Sustainability Consortium. These "sustainability coordinators" work to make their campuses sustainable through energy-related projects such as projects to reduce energy use, projects using renewable and clean energy systems, environmentally-responsible construction practices, buying green power and energy efficient products, buying more energy efficient and alternatively-fueled vehicles, and programs to reduce vehicle traffic.

Green campus coordinators networks also have been formed for regions, including Connecticut, Maine, Boston and western Massachusetts.